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Montana Fish and Game commission

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State of Montana

BIENNIAL REPORT

of the

FISH AND GAME
COMMISSION

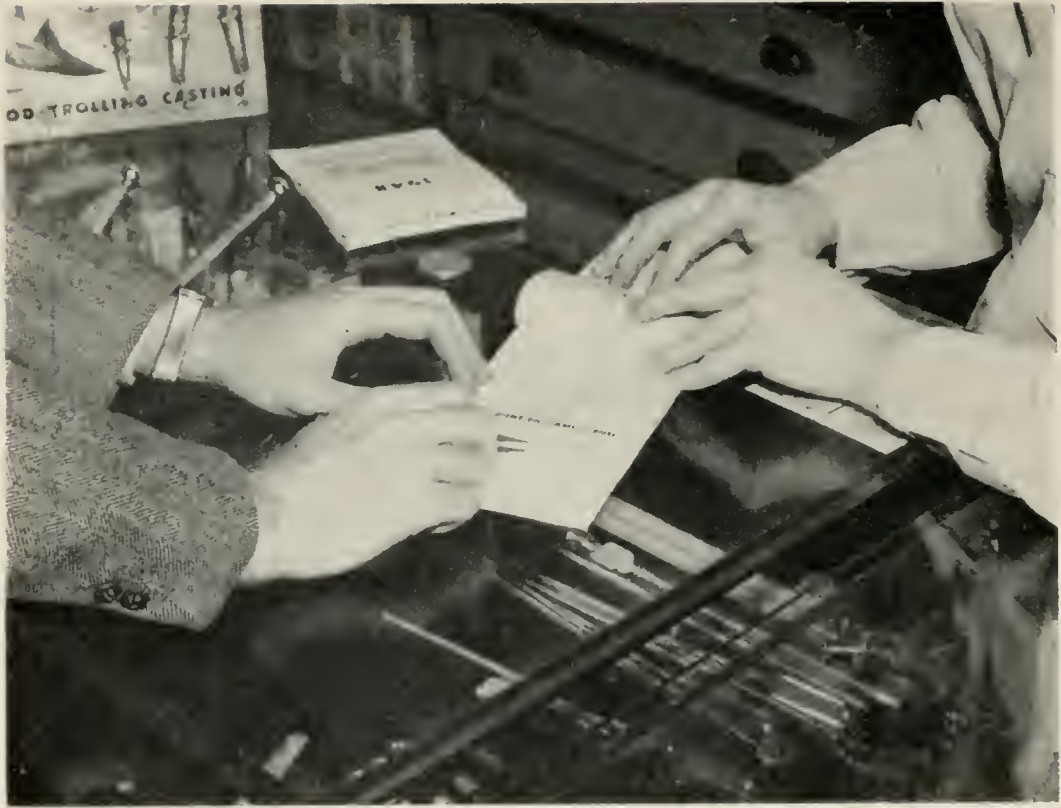
for

May 1, 1946 — April 30, 1947

May 1, 1947 — April 30, 1948



Published by the
MONTANA FISH AND GAME DEPARTMENT
Helena, Montana



Revenue Comes from Sportsmen

Sportsmen, through their license purchases and taxes paid on arms and ammunition, finance the cost of Montana's wildlife conservation and administration. License fees provide nearly all of the cost of caring for our wildlife resources to provide permanent hunting and fishing. Because the sportsmen and landowners are the major stockholders in the enterprise of providing hunting and fishing, it is proper that they should take an increasing responsibility in administering fish and game for their own best interests now and in the future.

To His Excellency

Sam C. Ford

Governor, State of Montana

Helena, Montana

Dear Governor Ford:

We herewith transmit the Biennial Report of the Montana Fish and Game Commission for the period May 1, 1946 to April 30, 1948.

Never before in our state's history have our citizens participated in such great numbers in the harvest of our wildlife resources and never before has Montana been confronted with such an enormous responsibility in the administration and perpetuation of wild birds, animals and fish.

The attached report summarizes the efforts of the last biennium directed toward meeting this unprecedented demand.

Respectfully submitted,

MONTANA STATE FISH AND GAME COMMISSION

ELMER JOHNSON, Chairman

WILLIAM CARPENTER, Member

A. C. GRANDE, Member

J. W. SEVERY, Member

E. G. VEDOVA, Member

A. A. O'CLAIRE, Secretary

FOREWORD

Since the publication of the previous biennial report, the demands on our wildlife resources have continued to increase. The recreational benefits which hunting and fishing afford resident and non-resident citizens become increasingly important as the nation develops. In addition to these great benefits, many stable businesses of considerable economic importance derive their entire or partial income from the presence of wildlife.

Still more important, however, wildlife enters the broad picture of conservation upon which the future prosperity of the state and the nation depends. Wildlife is but one of many natural resources which must be considered in a wise use program. Careful multiple-use management of the land is necessary to preserve essential soil and water resources. Intelligent management policies are imperative for each separate natural resource so that none will suffer at the expense of another.

This then obligates the Montana Fish and Game Commission to administer wildlife populations according to long-range, biological concepts in close accord with the responsibilities of many agencies. Recognizing the need for the perpetuation of satisfactory environment for wildlife is paramount. This calls for a program of efficiency which considers the needs and desires of the people coupled with the best possible use of every available source of information.

This report of the Montana Fish and Game Commission biennium portrays a picture of progress and invites consideration for future plans necessary to provide hunting and fishing for generations to come.

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Administration

During the past biennium, administration problems have resulted from extended activity in all divisions of the department. The most serious problem has been lack of adequate office space for new personnel added to our organization to assist in the supervision and administration of our program. The Fish and Game Commission conducted the most extensive improvement program in history during the past two years. Funds which made these extensive improvements possible came from the increase in license fees provided for by the Thirtieth Legislative Assembly and from funds accumulated and reserved by the Commission during the past several years for post-war improvement projects.

The Commission has employed an engineer who prepares plans and specifications for its improvement projects and supervises the inspection of actual construction by contractors to insure adherence to specifications and construction details. Extensive procurement of new equipment and property coupled with replacement of worn equipment necessitate a broader and more comprehensive record-keeping and maintenance division. A detailed property-accounting system has been adopted which accurately lists state property by location, description, condition and value. Equipment is likewise accounted for by a warehouseman. A repair shop is maintained where miscellaneous gear and mobile equipment is kept in working condition. These new methods of accounting and maintenance have increased the general efficiency and resulted in a saving to the department.

Elk Tagging-

The tag on this elk calf will stay on his ear throughout his lifetime. If taken by a hunter and the tag returned to the department, it will tell the story of where he has been and how long he has lived. A story that will provide data for better game management.



Big Game

With a topography that varies from short grass prairie to rugged, precipitous mountains and a variety of wildlife adapted to these habitat variation, Montana has been recognized as an important game region. Probably most important of the animals which place this state among the leading wildlife-producing districts are the big game species.

Whitetail and mule deer occur in abundance from the densely forested regions of Lincoln County to the badlands of eastern Montana. Elk and moose are found over much of the western section, and bighorn sheep and mountain goats range in the rugged, remote areas. Montana is the only state with a substantial number of grizzly bear and the black bear occurs commonly. Antelope roam the eastern prairie lands, and a rare but important visitor is the caribou of northwestern Montana. This abundance and variety of big game is of considerable economic and aesthetic value to the state. Typical of all renewable natural resources big game requires constant supervision and management.

Management of big game must be predicated upon two basic principles: First the assurance of perpetuation of all species and secondly the fair and equal distribution of harvestable surplus animals among legal hunters.

To accomplish the first objective, habitat must be provided the animals, forage must be reserved for critical, winter periods, sanctuaries for breeding and protection are often necessary and trained law enforcement personnel is essential to secure observance of protective regulations. The second principle, the harvest of surplus animals, necessitates first a good inventory to determine abundance and distribution of each species. Other needed facts include breeding potential, life history, and the probable hunting pressure a species may receive. From such data, it is possible to determine the number of animals to be taken, the method of hunting and sex and age class to be taken. When animals occur in sufficient numbers, a general hunt may be proclaimed with limitation of length of season and sex to be taken to be determined by local abundance. If mass or unlimited hunting might jeopardize a species, special permits are issued for a definite number of animals. In other cases, total protection may be offered a species if it is in danger of extinction.

These are some of the problems, and others occur as a result of the condition of habitat. Overabundance of big game in one area may result in overuse of necessary forage plants and the chance of loss of animals by malnutrition. A scarcity of a species may indicate the necessity of re-stocking. Perhaps predators are a problem or winter range scarce. Each problem requires basic information, and this information can be obtained only by trained personnel.

With the increase in total hunting effort and the resulting dangerous pressures placed upon wildlife, it has become increasingly necessary to determine the number and distribution of each species within the state. Therefore, a definite effort has been made to census the big game animals. Normally this is accomplished during the winter when the animals are concentrated on a limited winter area. By airplane, horseback, and snowshoe, these regions are covered carefully by trained and experienced department personnel, and through the co-operation of the U. S. Forest Service, National Park Service, Fish and Wildlife Service, and the Indian Service, a complete statewide inventory is accomplished.

Obviously this information cannot be 100 per cent accurate, but it definitely indicates population trends. When big game herds are managed upon the estimated population, it is assured that severe or dangerous overkills will not occur.

The following tabulation is believed to be the most accurate and complete yet developed. The numbers are based upon the year ending December 31, 1947.

Montana Big Game Inventory

Whitetail Deer	38,600
Mule Deer	107,700
Elk	31,600
Moose	3,700
Pronghorned Antelope	26,000
Rocky Mountain Bighorn	1,200
Mountain Goat	4,800
Black Bear	8,000
Grizzly Bear	700
Caribou	15

An analysis of the trends in big game indicate an upward swing of most species since 1940. There have been some local decreases, but the statewide condition has been favorable. Indications at present are that in most areas the population of big game will level off and remain about constant.

Deer and antelope have shown the greatest advance, but elk increases, although important, have been less significant. Both species of bear have become more numerous. Mountain sheep and moose have remained about constant, and a slight decrease has been noted in the mountain goat population. This latter decrease occurred in the Bitterroot Range where heavy hunting of this accessible area has made it advisable to close the season for at least one year.

During the past sixteen years, the recreational demands and hunting pressures have increased tremendously. In 1931 when big game licenses were sold separately from the fishing license, about 20,000 hunters purchased the big game permit. Just prior to the war in 1940, this figure had doubled, and in 1946, nearly 80,000 hunters purchased big game licenses.

The increase since 1939 is shown in the following tabulation.

Big Game Licenses Sold In Montana, 1939-1947

Year*	Resident	Non-Resident
1939	37,182	284
1940	39,201	327
1941	38,943	338
1942	46,487	481
1943	47,889	339
1944	46,892	374
1945	45,335	479
1946	52,694	1,085
1947	74,997	2,914
1948	72,396	972

* Ending April 30 each.

It is believed that the number of big-game hunters in Montana will level off to about 70,000. Non-resident hunters decreased between 1946 and 1947. Part of this may have been the result of increased license

fees. It is anticipated that out-of-state hunters will become more numerous when the cost of hunting in comparable western states is found to be similar to the cost in Montana.

Indications at present are that about 35 per cent of the state hunters are successful in getting one or more big game animals. From checking stations which are maintained in the more important areas plus field contacts and questionnaires, the following totals of legal hunter take have been obtained:

LEGAL KILL		
Montana Big Game		
	1946	1947
Whitetail Deer ..	2,200	2,209
Mule Deer	10,500	10,484
Elk	6,700	6,682
Moose	100	99
Antelope	2,800	2,819
Mountain Goats	100	128
Black Bear	900	811
Grizzly Bear	70	67

Management of big game may be divided into two general phases: The obtaining of accurate, detailed data concerning each species, and the actual development or doing of the things indicated as necessary by the research work.

For convenience in study and management the state has been divided into big game management units. These divisions have been determined by topographical and biological factors, and each has distinct problems. Only recently have sufficient well-trained personnel been available to obtain by field investigations the necessary data essential to big-game management.

Detailed, winter coverage was made of the important Blackfoot-Clearwater, Beaverhead-Big Hole, and Ruby-Madison game ranges. Similar intensive work was carried out in the Gallatin-Absaroka unit over a two-year period. On this unit so many problems have developed with reference to the northern Yellowstone and Gallatin elk herds that a man has been permanently assigned to this area. A study of the factors involved on the winter elk range, with the objective of improving these ranges, is being conducted with the co-operation of the U. S. Forest Service. This information is expected to have a vital bearing on the management of the Gallatin elk herd.

Two men have been assigned to a study of the relationship of sustained yield timber management and game production. Objectives are to maintain a maximum deer herd on the forest lands of Lincoln County and to increase the yearly yield of deer in this unit. The vital importance of both timber and game production on this area makes a complete understanding of the inter-relationships essential. This project is conducted in co-operation with the U. S. Forest Service.

On the rolling plains and eroded badlands of eastern Montana, different game management problems occur. A major portion of the management program in the eastern area has consisted of re-stocking depleted areas. One man with two assistants has been permanently assigned to this large area. An airplane has been purchased for use on the vast territories of eastern Montana. Definite management plans, based upon field observations, have been prepared for this area. The desirable hunter harvest of both antelope and deer has been determined,

and areas in need of re-stocking have been checked closely, and necessary breeding stock is being introduced.

A statewide investigation of the mountain goat was conducted during the biennium. The possibility that this rare big game animal was not holding his own as well as other species under present-day hunting pressure makes this work of particular value. Several current changes in the hunting regulations have been based upon the findings of this project. The capture of big game in areas of abundance and its release in desirable areas is becoming one of the most important phases of management.

The transplanting of elk was carried out successfully as early as 1911. Since that time approximately 1,400 elk and thirty-two new hunt-able herds developed. During the last two years, emphasis has been placed upon trapping and transplanting antelope, deer and to a lesser extent, mountain goats and mountain sheep.

One of the outstanding examples of interstate co-operation was the exchange of Mountain mountain goats for bighorn sheep from the thrifty Tarryall mountain sheep herd of Colorado. The sixteen bighorn sheep received from Colorado have been placed temporarily in a 400-acre holding pasture in the Missouri breaks north of Jordan in Garfield County. This represents the re-introduction of mountain sheep into an area where the extinct Audubon variety once was extremely abundant. It is expected that mountain sheep may be developed in substantial number in this vast badland area of eastern Montana.

The department moved 1,610 pronghorn antelope from their native range and re-introduced into forty-one new areas of known historical antelope range. Both species of deer were caught, 531 mule deer being released in twelve new areas and 153 whitetail released to establish four additional herds.

In 1947 five mountain goats were transplanted in the Spanish Peaks of the Gallatin Range and nine goats were shipped to Colorado to introduce a new big game species in that state. Eight mountain sheep were moved from the Sun River herd to start a new band on Wildhorse Island on Flathead Lake.

LAND ACQUISITION

Perhaps the most important program initiated by the Fish and Game Department is the acquisition of vital game range to assure these animals a wintering area. Problems concerning summer range are not comparable to the winter range problem. The number of big game animals is definitely limited by the amount of winter range available. Projects of this nature have been carried on with the active co-operation of interested ranchers and adjacent landholders. It is generally agreed if big game is to survive in the increasing complex pattern of land use that certain critical areas be reserved for game only.

In the Sun River 18,000 acres of critical winter range have been obtained for use by elk. This range will do much to relieve damage on adjacent lands. Development of this winter range for game is now progressing.

The Cover Photo

In the bitter cold of midwinter in the Sun River foothills, elk string out before the airplane. These elk are wintering in the new Sun River winter elk range, a major wildlife restoration project.



By fin clipping, a trout is marked so the state fish and game department can follow his travels and learn how better to plant fish. Sportsmen are urged to report catching such trout and to keep fishermen's logs on their catches, all in the interest of better angling.

Fisheries

During the last biennium much has been accomplished in fisheries work, but much remains to be done in our efforts to bring our fisheries program up to the high standard of production and conservation which we hope to obtain.

With the release of men, materials and equipment following the war years, the program has assumed new aspects. Hatcheries are and will continue to be a keystone; but as an integral part of the program, biological work begun July 1, 1947, will compliment the hatchery system in an effort to solve its problems of distribution to insure the greatest return possible of liberated fish from the hatcheries. This work will deal not only with hatchery fish, but with all phases of fish life. This will strengthen management by providing scientific data on which decisions may be made.

At the Anaconda hatchery, there has been installed a new and larger pipeline to bring more water from the spring to the hatchery and ponds. A concrete mixing chamber was built to mix the warm water from one spring with the cold water from another spring and to insure a greater flow of water with a uniform temperature. Completed at Anaconda are sixteen raceway-type rearing ponds, constructed of concrete, 104 feet long by 10 feet wide and 3½ feet deep. Two circular, concrete ponds forty feet in diameter and three feet deep were also constructed. These ponds are for the purpose of holding fish to yearling age and should produce annually 450,000 fish from four to six inches in length without interfering with production of smaller fish. The ice house at Anaconda was made into a refrigerated, storage building capable of

storing fifty tons of fish food. Some repairs were made to the hatchery building, and the yard and driveway have been newly surfaced.

Construction at the Arlee station includes a new hatchery building 41 feet by 84 feet, with built-in refrigeration and storage rooms, food-grinding room, and office space. This building is equipped with ten concrete tanks 32 feet long and 45 inches wide and 30 inches deep, which will enable holding fish in the hatchery building to a larger size than can be done with the old trough system. Two new four-room cottages and a four-stall garage and workshop have been completed. A pond 600 feet long and 200 feet wide has been constructed for the purpose of holding brood stock. This stock of rainbow, which spawn in December, will annually produce 3,000,000 eggs when in full production. The planned improvements at the Arlee station are only about fifty per cent complete, as it is planned to put in ten of the raceway-type ponds as soon as possible. When the ten ponds are completed, this station should turn out 400,000 fish from four to six inches annually.

The Lewistown station enlargement centers around a new hatchery building 41 feet by 84 feet with 18 inside tanks. These tanks are 32 feet long by 28 inches wide and 28 inches deep. Like the Arlee hatchery building, this hatchery has built-in refrigeration and storage space, a work shop and an office. A new pipeline was laid from the spring to the hatchery and ponds to insure an ample supply of water. Four of the raceway-type ponds were built at this station. With the new concrete ponds and the large dirt ponds already in use at this station, it should produce 300,000 fish from four to six inches in addition to the usual quota of smaller fish.

At the Emigrant station the old troughs formerly used in the hatchery were removed and ten concrete tanks built in their place. These tanks are 16 feet long by 28 inches wide, and 30 inches deep. This improvement will enable holding larger fish and many times the numbers of fish formerly held in the hatchery. Additional improvements include four of the concrete raceway-type ponds, a new pipe in the hatchery to replace the old head trough, and about 300 feet of tile from the different springs to supplement the water supply. These improvements will increase the output from this station fifty per cent.

A new pipeline has been purchased for the Libby station to insure a better water supply. A new settling tank has been installed in the water line at the Somers station which eliminates much of the silt which formerly came down into the hatching troughs. Plans have been made to install a new settling tank in the water line at the Polson station, but to date this tank has not been built. Both the Somers and Polson stations are particularly important because of their production of the Kokanee or Sockeye salmon.

Some improvements have been made at the McNeil pike hatchery near Malta. The most important improvement is the heating device which was installed around the water line which feeds the hatchery. By using this device, the temperature of the water can be raised to the point where the incubation period is shortened materially. This increases the percentage of the hatch and insures a stronger and better fish. About 1,250,000 pike eggs were hatched at McNeil in 1947, and the resulting fry were planted in reservoirs in various parts of the state with the hope that good pike fishing may be had where little or no fishing was enjoyed before.

Engineering data together with plans and specifications have been completed for new refrigerated storage buildings of thirty-ton capacity

to be built at the Great Falls, Big Timber, Emigrant, and Hamilton stations. At the Big Timber station, it is planned to put five concrete tanks inside the hatchery and to replace a section of wood floor with a concrete floor. At the Hamilton station plans are ready for the construction of five concrete tanks to be built inside the hatchery and for a new dam to be built in Skalkaho Creek to insure the water supply for this station.

During the last biennium the department entered into a co-operative agreement with the Fish and Wildlife Service whereby the department furnishes the Fish and Wildlife Service certain funds to be used to further the fish cultural program of the service at the Ennis and Creston hatcheries. All fish hatched at these stations, above the requirements of Glacier and Yellowstone national parks, are planted in state waters. It is believed that this arrangement will materially increase the numbers of fish available for the water of Montana.

The co-operative agreement between the Fish and Game Department and the Fish and Wildlife Service effecting the Warm Water Fish Cultural station at Miles City is still operating, and through this agency many fish are planted annually in the waters of eastern Montana. As more reservoirs are being built each year by the farmers and ranchers with the co-operation of the Soil Conservation Service, this program is becoming more and more important to the residents of eastern Montana, where trout fishing does not prevail.

Old fish distribution facilities have been replaced by new and modern equipment. The department now possesses a highly efficient tank truck that is capable of transporting six hundred pounds of trout anywhere in the state.

Hatching eggs and rearing fish is not the whole story as these fish must be introduced into the water. It has been repeatedly demonstrated throughout the nation that fishing cannot, in most instances, be improved or maintained at the present level by hatchery planting and other accepted management measures if these are based on casual observations and personal belief. It is not sufficient merely to get the fish into the water. The success of hatchery releases may depend upon the following circumstances: (1) the difference between planting fish from the hatchery truck at selected spots and scattering fish evenly over a large area by drifting the river in a boat; (2) the difference between planting fingerlings or legal-size fish; (3) the difference between planting fish at different season; (4) the difference between planting various species in different waters. Then, too, how can casual observation reveal how many fish to plant?

Large amounts of money have and are being spent on our hatcheries. That this money may not be spent in vain, a staff of biologists has been added to the fisheries division to aid the hatchery men who are already over-burdened with work by finding answers to the questions of distribution. The biologists' problems begin when the hatchery truck reaches the stream and terminate with the fish safely nestled in the fisherman's creel. Their work will result in a greater percentage of fish in the creel and fewer dying before they are caught.

Tagging work is anticipated for the Madison River and Hebgen Lake to determine the best methods of planting. Two four-man crews will operate in various sectors of the state to gather data from which the waters' productivity may be ascertained.

The nature of this study will be the calculation of growth rate and the fishes' condition for the various lakes and streams. A body of water,

whether it be lake or stream, can support only a certain poundage of fish—the same as a range can support only so many head of cattle. Where the growth rate is found to be low and the fishes' condition poor, stocking trout will be a waste of fish. When such lakes and streams are found, improvement efforts will be made to increase their productivity.

To supplement this productivity data, creel census is needed. Creel census measures production, and it is more valuable than any single item of data. A program of creel census was begun and will be continued indefinitely. This catch data is gathered by co-operation from three sources: (1) Game wardens in the course of their regular duties record the fishermen's catch data. (2) Dude ranches, resorts, boathouses, and guides are contacted and asked to keep records for those fishing under their supervision. (3) "Fishermen's Log Books" are distributed to co-operative sportsmen that they might have a convenient place to record their individual catches.

The data desired is the water fished, the date, the number, kind average size fish caught and the hours spent fishing. This will be analyzed in many ways, but chiefly to discover the percentage of each species of fish taken to aid in knowing where work should be done and will provide a measure of the success of initiated improvement measures.

To date eighteen ranches, resorts, boathouses and guides are co-operating, and three hundred fifty "Fishermen's Logs" have been distributed. At the opening of the fishing season, all the game wardens will record the catch data. Whether the general public will contribute to the creel census in a manner making the data usable remains to be seen.

In anticipation of an investigation of Fort Peck Reservoir to determine population levels, to determine the possible need for rough-fish control, and to study the problems of optimum fish utilization, plans were laid and much equipment acquired. This project is to be a co-operative one with the department, the Missouri River Basin Studies of the Fish and Wildlife Service, and the Army Engineers.

One of the greatest detriments to Montana's fishing has been the unwise introduction of various species of fish. Some of these, like the introduction of sunfish into Lake Mary Ronan, were done deliberately by individuals. A large majority of these introductions, however, such as the chub in Hebgen Lake, probably were made by using minnows to fish. Where an overwhelming poundage of the fish in a lake or stream are rough fish, additional stocking of trout may aid but little. This condition should be rectified before further stocking will produce satisfactory results. In certain cases, stocking of large fish may control the rough fish. In other cases, this will not work. Game fish other than trout may also fail under many conditions to produce the optimum in recreational value in the face of concentrations of rough fish.

A crew of two men will begin work in the spring of 1948 on Hebgen Lake. Besides furthering work of tag recovery and gathering data for productivity studies, they will spend much time considering the trout-chub relationship and determining methods of chub control.

Complete eradication of rough fish in waters where this is possible is most desirable. By doing so, it is possible to restore lakes, ruined by the introduction of undesirable species, to their former ability as trout producers. In accordance with this work, complete eradication of fish will be made in 1948 in Spoon Lake near Whitefish and Savage Lake near Troy.

Another type of rough-fish control is in progress that has value in a twofold manner. The department has provided a crew for rough fish removal which is working in both eastern and western Montana. Removal of rough fish leaves more room in the water for game fish. The many tons of carp, buffalo, suckers, squawfish and others can be used for trout food at stations equipped with cold-storage facilities. It is expected that this doubly valuable program will in the years to come mean cheaper trout for waters not overcrowded with non-game fish.

The fisheries division of the State Fish and Game Department has an integrated program with each part dependent upon the other. Hatchery production, constantly modernized for greater output and faster and more effective distribution, is and will continue to be a keystone. Improvement of waters and management of those waters to provide the best habitat for both fish naturally hatched and those from hatcheries is a definite part of the established program. Improving fishing is the ultimate goal, and the biological work is designed to find the needed answers so that effort and money will not be wasted. From facts assembled, fishing seasons can be set more wisely, plantings made more accurately and economically and lake and stream improvement can be used to prepare the best home life for fish before they are planted. This program will mean better fishing in more places at less expense per fish in the creel.

LAW ENFORCEMENT

An increase in the number of regular deputy game wardens from 27 to 42 was authorized by the Thirtieth Legislative Assembly. This increase has resulted in better patrol coverage and law enforcement throughout the state. A total of 1,134 game law and regulation violators were convicted during the biennium as compared to 640 for the previous two-year period, an increase of 77 per cent.

Recognizing the need for greater co-ordination and better supervision of our expanded warden force the Commission established seven warden supervisory districts by dividing the state into units to correspond with districts previously established for the purpose of obtaining game censuses.

During the period for which this report is written three of the seven supervisory districts have been set up: District 1 with headquarters at Kalispell, District 2 with headquarters at Missoula, and District 6 with headquarters temporarily assigned at Malta. In the districts which have been activated better co-ordination and supervision of personnel have been possible, resulting in a more efficient district organization to cope with special law enforcement problems and seasonal peak loads of investigation or routine work.

A warden training school held in Helena from September 8 to 12, 1947 resulted in a better informed staff of game wardens. The comprehensive training course in law enforcement was conducted by special agents of the Federal Bureau of Investigation. The success of the school indicates the advisability of similar future sessions.

A combined law enforcement handbook and set of instructions has since been furnished to each deputy game warden. Sections of the Montana codes relative to arrests, warrants, search, and seizures are included in the handbook as well as departmental policies governing many other phases of field work. Training schools and written instructions have resulted in placing in the field a better-informed conservation officer.



Providing permanent cover for game birds where none exists promises to furnish new hunting areas for more sportsmen. Progressive sportsmen's clubs and landowners participate in this work.



Wild and game farm-released pheasants are studied at voluntary checking stations. Guesswork and personal opinion are being discarded in the department's efforts to supply more sport.

Game Birds

NATIVE SPECIES

In 1946 Montana hunters enjoyed an open season on sharptailed grouse which varied from two days in several counties to six days in several others. A two-day season on blue grouse, ruffed grouse and Franklin's grouse was allowed in the northwestern section of the state. In 1947 a two-day open season was allowed on all species of upland game birds except sage grouse. The department during the period of this biennium has confined its activities to inventories of existing populations to find whether the populations would stand an open season.

Authorities generally agree that native upland game birds show a strong tendency to follow cycles of high and low numbers. Probably some small benefits might be gained by acquiring tracts of land which might be developed for use of upland birds. The practicability of such a program, however, is questionable because large tracts are necessary, and it is essential that the lands revert to their original state which favored the birds before agriculture changed the picture in Montana. Coupled with this is the fact that native upland birds appear to follow cycles. It may not be possible to maintain a high population of birds even on lands devoted to that purpose. Present indications show that the sharptailed grouse population is increasing, particularly in some areas. Much time and money has been spent in the United States in an effort to maintain a surplus of harvestable native game birds. A few states have shown only moderate success and that only through very expensive and intensive management. These efforts are being watched by the Fish and Game Department, and should any effort show good results the department will consider such a plan for its use.

The department intends to count the upland game bird population in the near future. Should populations of sage grouse seem plentiful enough in local areas, possibility of trapping and transplanting to localities of low populations will be investigated. Normally it is likely that the native upland species will not multiply to the extent that they will furnish as much shooting as do introduced game birds. Therefore, it seems wise to concentrate the department's efforts on maintaining satisfactory populations of game birds which offer the greatest possibility of furnishing maximum hunting enjoyment to the most people. The fact that the native species will remain paramount in the minds of those who knew them well in the past is not being overlooked by the department.

INTRODUCED SPECIES

The Ringnecked Pheasant

No open season in 1946 and only a limited one in 1947 follows the history of the general decline in pheasant numbers throughout the pheasant range of the continent. Since the decline was nation wide, department policy cannot be considered as a contributing factor. Ring neck populations depend to some extent upon favorable weather conditions and favorable land usage. There is some evidence that cycles of highs and lows in the population are caused by unknown factors.

In spite of these factors, uncontrolled by man, which so greatly affect pheasant numbers, the department is continually striving to perpetuate pheasant hunting. Three channels of endeavor, working hand in hand, are directed towards this end.

The fact-finding part of the pheasant work is conducted by the department where continual inventory of the pheasant crop is a basic

part of its activities. These studies indicate the best regulations for each year. During the period of this report, data collected shows that certain concepts of the department's pheasant program should be altered. A state wide banding program in 1947 resulted in only 3.5 per cent of the bands placed on game farm cock birds being returned to the department office by hunters. It is realized that perhaps many individuals failed to turn in the bands. However, even accounting for this, the survival rate is not satisfactory enough to be considered a highly efficient program. Hunter-take analysis shows that even where game farm birds are released in heavy concentrations, the bulk of the birds brought to bag are those raised in the wild, especially young of the current year's birds. Improvement of releasing methods and careful selection of releasing sites seems necessary in view of study, and concentrated effort is being planned to increase the survival rate and determine the best possible use of game farm released birds.

At the Fort Peck farm large covered holding pens for brood stock have been constructed. Authorization has been given for the development of land on the Fort Peck area so that the open pen type method of rearing birds may be followed. This includes an irrigation system which will provide alfalfa, corn and wheat for the birds. Starting with the 1948 season, pheasants will be free to roam in a semi-wild condition on 110 acres. After acclimation to wild conditions, the birds will be trapped, transported and released.

The Billings farm has seen considerable improvement and enlargement. Four new brooder houses have been completed. New equipment includes incubators, hovers and hatching machines. A well has been drilled on the property, and a new water-supply system is now in operation.

The game farm at Warm Springs has been fully modernized, and now has a single-run capacity of 14,200 birds. Nine new brooder houses are in operation as well as additional battery brooders and humidaire hatching machines. A six-acre open-topped holding pen has been constructed, and most of the wire on all the pens has been replaced with new material. During the winter of 1947, three thousand hens were held over at the farm and released into the wild prior to the nesting season.

Because regular game farm methods are producing birds with a low survival ability, the state property located near Moiese has not been developed into a regular game farm. The farm is to become an experimental site where worthwhile information on the raising and management of pheasants can be collected. In 1947 valuable information obtained here showed some of the weaknesses of game farm birds released into the wild. Two brooder houses under construction will be used to rear birds by methods designed to overcome some of the factors which contribute to their unsatisfactory survival rate. A project now under development at Broadview, north of Billings, seeks to provide requirements for game birds by fencing small areas and encouraging thereon the growth of cover plants. The Billings Rod and Gun Club is cooperating on this promising project. This area has a huge acreage of strip-covered wheat lands. Because suitable permanent cover is lacking, pheasants cannot use the area. With development of needed cover, the fields of wheat stubble may produce the combination of factors needed to support a population of game birds.

Establishing permanent pheasant cover where present sources are too scanty or none exists may offer opportunities to expand the pheasant

range in Montana. Improvement of the environment for wildlife as a first step in the whole process of wildlife management promises to be the most feasible and logical.

The whole pheasant program during this biennium has been modernized and revamped. Closer correlation between the three enlarged and improved game farms now exists. The Restoration Division has a large part in the pheasant program. Guesswork and personal opinion are being discarded, and facts are being gathered to present a real basis for an intelligent program.

Since the state has a combination small game and fishing license, there is no immediate method to determine the trends of small game hunting pressure. In addition, the combination license forces the distribution of funds for fish and game bird work to be made by estimate.

Hungarian Partridge

The sportsmen have been aware that this speedster has not been plentiful for a number of years. From all indications this splendid game bird does not have the fortunate facilities to weather through a tough winter as does the Chinese pheasant. It is entirely possible that almost the entire population may be wiped out in local areas by adverse weather conditions. It is just as likely that these birds may appear in their former abundance almost as quickly as they vanished. Since 1946 reports indicate that the Hungarian partridge is seen in greater numbers than previously, and in view of the fact that the welfare of this bird depends to a large extent upon factors beyond the control of man, the department must follow the plan of allowing the maximum utilization of the increase whenever satisfactory populations permit.

GAME BIRDS LIBERATED

	1946	1947
Billings	15,142	19,075
Fort Peck	17,153	16,194
Warm Springs	4,724	10,846
TOTALS	37,019	36,115

Fur-Bearing Animals

The legislature in 1947 gave the Fish and Game Commission authority to set the trapping season on fur-bearing animals. Using this authority, the Commission in 1947 declared an open season on mink, fox, raccoon and muskrat. The recommendations of sportsmen's clubs, the fur industry, trappers and other interested parties all were considered. Generally the season proved to be satisfactory.

An auction sale of confiscated furs was conducted in 1947. The sale was conducted on a high plane, following procedures regularly used in the fur industry. Montana fur interests have been well pleased with the method of procedure and with the results obtained.

The department has been actively engaged in a program of trapping and planting beaver. Complaints of damage received during the summer, when the pelts are not prime, result in the live trapping of individual beaver which are damaging to private owners and public land managers. Suitable transplanting sites are selected where beaver are not present. Preliminary investigations indicate that this type of program is producing beneficial effects.



These coyotes were removed from an area where the department has released a group of mountain sheep. Predator-control programs so directed are beneficial.

Predator Control

The Commission contributed over fifty thousand dollars (\$50,000) towards the control of predatory animals and predatory birds during the biennium. For the year ending April 30, 1947, the commission spent approximately \$14,000 to control predators, approximately half of which was used to pay salaries and expenses of government trappers under a co-operative predator control program with the Fish and Wildlife Service and the State Livestock Commission. For the year ending April 30, 1948, the Commission's contribution toward predator control jumped to approximately \$37,000. Of this amount approximately \$27,000 was spent for salaries and expenses of government trappers under the co-operative predator control program. The Commission continued to pay one-half the bounty claims of the State Livestock Commission until July 1, 1947 when bounty payments as provided for in Chapter 112, Laws of 1947, ceased. The Predatory Animal Advisory Committee then became active as provided for in Chapter 113, Laws of 1947.

The direct payment of bounties on mountain lions and bobcats to applicants was continued by the Fish and Game Commission. During this period the Commission also gave financial assistance to sportsmen's organizations by offering to pay one-half of the funds expended by such organization to control crows and magpies, not to exceed 10 cents per bird. The cost of such assistance was approximately \$2,000 for the year ending April 30, 1948. After receiving proven reports that golden eagles were causing severe losses to antelope and other wildlife in Carter and Powder River counties, the Commission authorized payment of a \$5 bounty on golden eagles killed in these counties during March and April, 1948. During these two months two hundred and ninety claims for bounty on eagles were paid.



Food and rest is the big need of migrating ducks and geese. The Montana Fish and Game Department provides water for resting and introduces food and shelter plants in ponds and lakes.

Waterfowl

In 1947 the total duck population of the United States was estimated to be in the neighborhood of 54,000,000 ducks. This was a low in duck populations, and in spite of diversified opinions as to the cause of the decline, the fact remains that the nation does not have the ducks that it formerly did.

The department has aided the waterfowl program by the improvement of thirty-seven existing reservoirs which formerly provided little waterfowl habitat. During this biennium the department has actively engaged in a program of maintaining these reservoirs. In addition, suitable waterfowl development areas have been investigated with the idea of creating habitat suitable for waterfowl nesting areas. Plans are now in progress that will see Montana up to date with other states in taking a more active part in obtaining facts which will lead to more efficient and intelligent management of the waterfowl resources. A project will be initiated whereby the department will co-operate with states in the Pacific and Central flyways. These studies will include the outlining of migration patterns, census, hunter-take analysis and other factors which will enable the Federal Fish and Wildlife Service to set regulations which will more effectively utilize the ducks and geese. It is likely that the continuation of managing waterfowl by the flyway concept will be continued. Flyway concepts of management will be greatly aided by the type of information which will be collected by the studies planned in this state. With the greatly increased demand for waterfowl since the end of the war, it is not likely that each hunter's share of the waterfowl crop will approximate that enjoyed by hunters of former years. However, through further research, the development of waterfowl areas, favorable weather and good land use, it is possible that waterfowl hunting may be enjoyed in such quantity as to satisfy the logical and reasonable sportsmen.

PUBLIC INFORMATION AND EDUCATION

Since Fish and Game programs must vary with conditions which are continually changing, it is absolutely essential that the interested public be kept fully informed of the changes occurring in nature and the need for subsequent changes in the department's program. A lack of this information is perhaps the greatest handicap to modern game management. This bottleneck prevents putting into practice facts long known to be essential in maintaining satisfactory hunting and fishing.

A constant demand for information on Montana's wildlife has been exerted upon the department. Sportsmen's groups, civic organizations, schools, 4-H groups, and others have requested speakers, literature, movies, radio programs, and other outlets. Newspapers and news-gathering agencies have also desired information.

During the 1946-47 period every effort has been made to supply speakers for any group upon request. Personnel of the office and field alike are being called on to meet the numerous requests. The department has purchased a number of films which are distributed for public use by the State Visual Education Department. Plans are in progress to offer films of department origin which will depict various activities. Since the fall of 1947, radio stations and news-gathering agencies have been supplied with the type of information they often request. The department is contributing to the annual state 4-H conservation camp. In spite of the limited facilities available to meet the above mentioned demands, progress is being made. The department is gaining experience in supplying information and education, which will be relied upon when an expanded program seems advisable.

LEGISLATIVE RECOMMENDATIONS

During the past two years, it has become apparent that changes in existing statutes through legislative action are necessary. Increasing demands on our wildlife resources necessitate additional safeguards in order that the citizens of the state can equally share in the enjoyment that wildlife affords.

A revision of the statutes regarding guides and packers is necessary in order to give more supervision and provide a high standard of guide service to the public. Increased license sales and fees require that the State of Montana be more fully protected by a higher bond requirement from license agents.

Clarification of the statutes providing for the purchase of licenses is necessary, particularly defining the requirements to purchase resident hunting and fishing licenses and limiting the exceptions to members of the Armed Forces for the purpose of obtaining resident hunting and fishing licenses. A revision of the statutes defining game fish should be made. The special permit system for taking big game animals should be altered and revised to take care of certain discrepancies and present unsatisfactory provisions.

New legislation should be enacted to prohibit the artificial introduction of any fish and wildlife into Montana from sources outside or inside the state without knowledge or consent by the Fish and Game Commission. A statute should be included in the law which will allow Federal Aid Funds to pay a nominal fee per acre to regular tax receiving

agencies in lieu of taxes for certain lands held for wildlife management purposes. Authority should be granted the Commission to kill any game species after proper investigation reveals the animals to be a menace to human life and property.

FUTURE

Demands on our wildlife resources have increased tremendously in recent years and likewise so have most activities of the department. The demands for wildlife cannot be accomplished, however, by merely increasing the activities that have been adequate in the past. Trial and error methods of short-time programs will not do the job when it is realized that the most efficient programs are barely holding their own. Furnishing everyone with as much fish and game as was provided when only a fraction of present-day sportsmen were afield seems to be impossible from both the biological and economic standpoint.

No longer is it necessary to rely upon personnel only casually acquainted with fish and game matters. Trained and competent wildlife specialists will allow the removal of guesswork from fish and game management. Their duties will be directed toward determining how to furnish more sport for more people.

Game and fish management in Montana will be based on the conception that the lands and waters must be suitable for wildlife production. The acquisition, development, and management of lands for big game, upland birds, waterfowl, and fish will continue to be a major effort of the department. These areas will become permanent havens for wildlife where their numbers will be increased so hunting and fishing may be enjoyed, thereon, by increasing numbers of future sportsmen.

Artificial production will not only be kept to a maximum by proper maintenance and more development. In addition, the department will be very critical of its efforts and will constantly examine the actual value of released trout and pheasants. This examination will reveal the best methods of using the products of hatcheries and game farms. It is essential that this expensive program be handled so the greatest return will be realized for every dollar spent.

Progress already made in the enforcement division is only a beginning towards further efficiency. Prevention of game law violations through education promises to reduce the illegal drain on wildlife resources. Enforcement personnel will be an aid in solving management problems by collecting specific facts in the field. Law enforcement will receive greater attention through the continually increasing use of modern equipment and techniques. These innovations will all pivot around the warden district plan.

Proper execution of these activities requires a well-organized department which is completely adequate in every division. The department in recent years has been undergoing a tremendous expansion. In spite of additional personnel and equipment, the department is barely able to adequately handle all matters that arise. This situation can be corrected when the growing pains subside, and time is afforded for a glimpse into the future. Fuller attention then can be given to activities which now are not possible to include in our program.

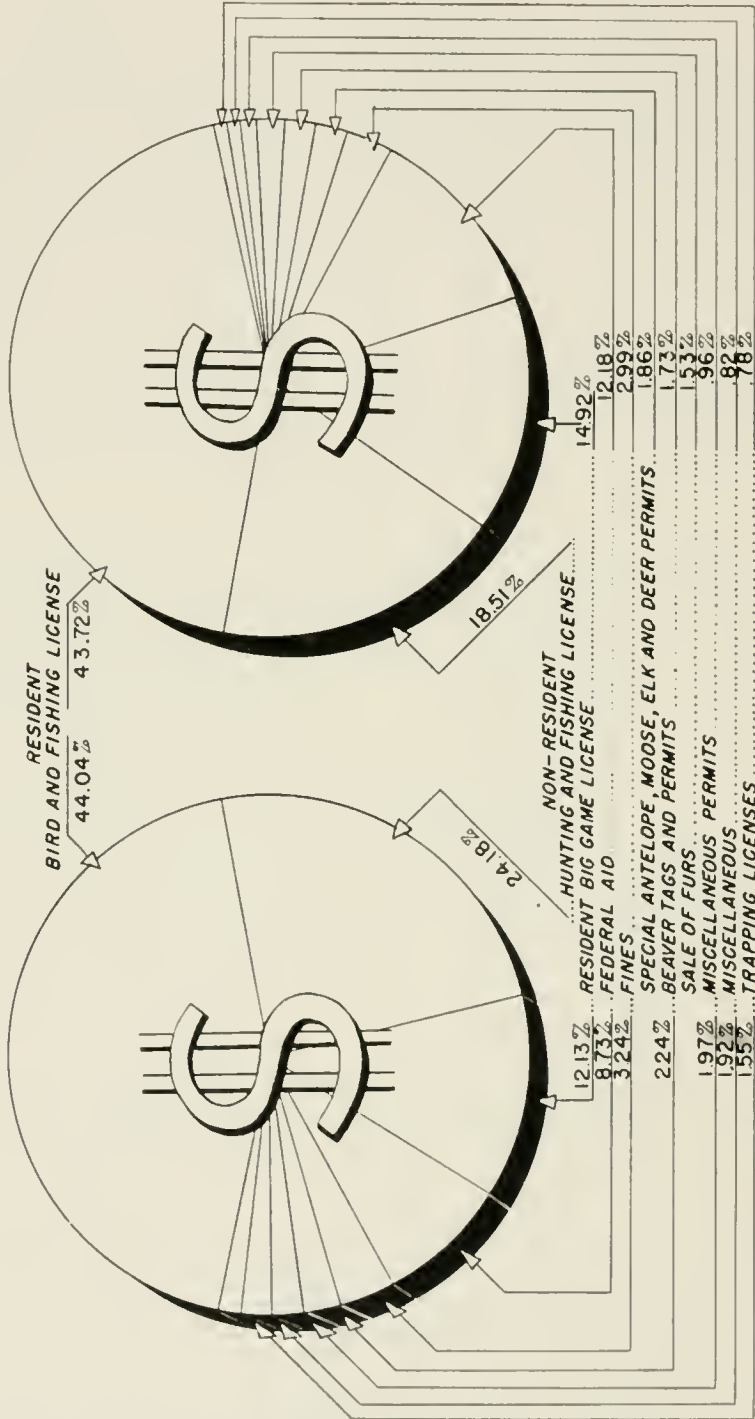
STATE OF MONTANA

FISH AND GAME DEPARTMENT

FISCAL YEAR REPORT

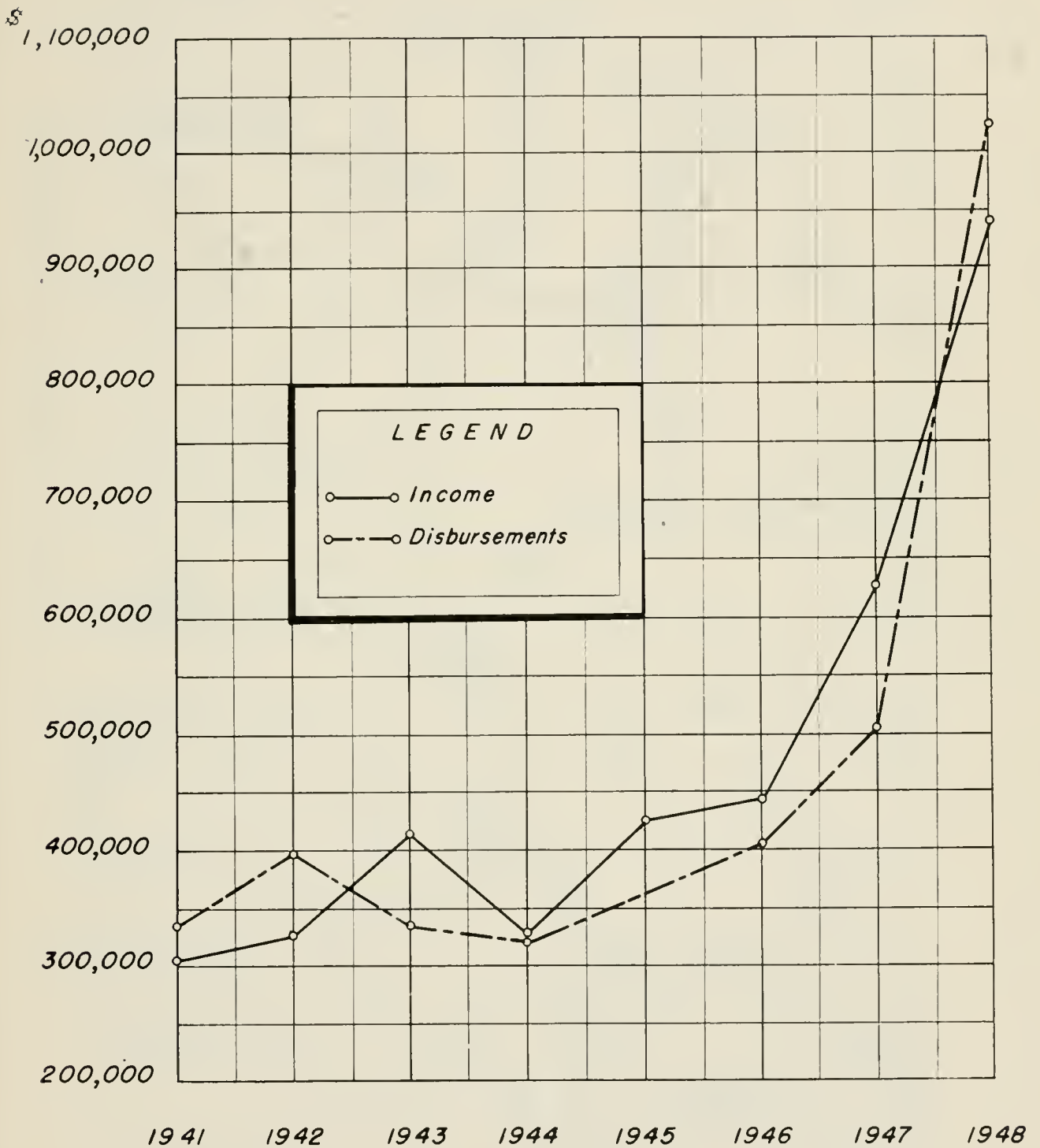
MAY 1, 1946 - APRIL 30, 1947

MAY 1, 1947 - APRIL 30, 1948



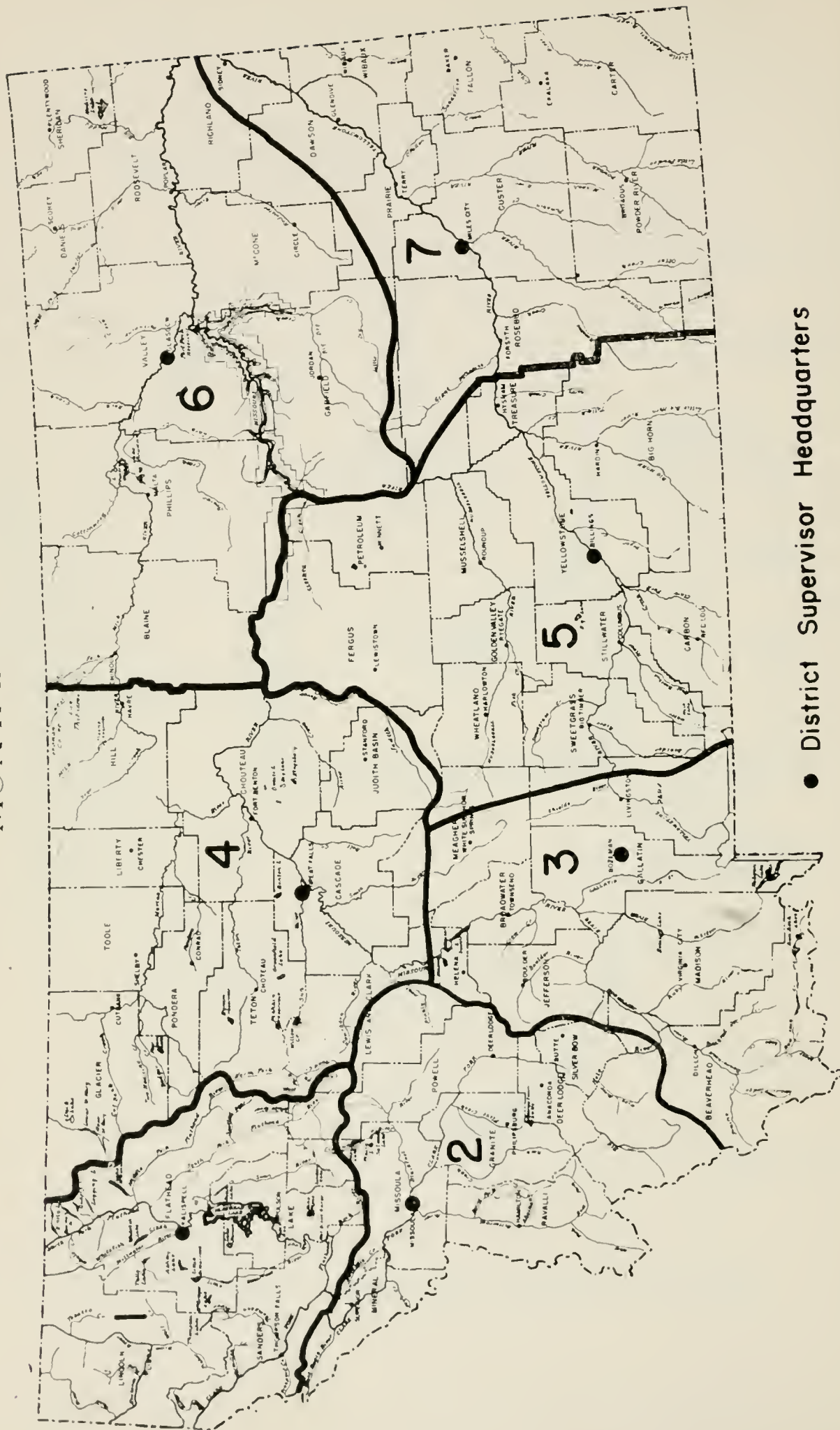
Where the income dollar came from.

STATE OF MONTANA FISH AND GAME DEPARTMENT



Comparison of income and disbursements from May 1, 1944 through April 30, 1948

MONTANA



● District Supervisor Headquarters

Personnel

STATE ADMINISTRATIVE

A. A. O'Claire	State Fish and Game Warden
A. G. Stubblefield	Superintendent of Fisheries
R. F. Cooney	Director, Restoration Division
W. J. Everin	Chief Deputy
W. L. Reavley	Biologist
C. K. Phenicie	Fisheries Biologist
C. K. Dalton	Engineer
O. N. Wolverton	Chief Clerk

LAW ENFORCEMENT

District 1

Ross Wilson, Supervisor	Kalispell
Magnus Bolken	Whitefish
A. H. Cheney	Thompson Falls
Lawrence Deist	Kalispell
Louis Haverlandt	Kila
O. J. Nollar	Potson
Vern Waples	Libby

District 2

R. H. Lambeth, Supervisor	Missoula
George Hollibaugh	Drummond
Clyde Howard	Missoula
Stuart Markle	Anaconda
William Schultz	Wisdom
Gene Sherman	Missoula
M. J. Watt	Hamilton

District 3

John Burke	Livingston
L. C. Clark	Bozeman
Carl Daniel	Whitehall
K. O. Fallang	White Sulphur Springs
Wm. Ray Kohls	Ennis
Frank Marshall	West Yellowstone
Charles R. Price	Dillon
Jack Thompson	Townsend

District 4

Keith Burke	Conrad
Truce Emett	Great Falls
Charles Loberg	Stanford
Asa Rogers	Havre
Don Wright	Browning

District 5

Francis Johnson	Red Lodge
G. O. Johnson	Harlowton
Jack Kohler	Billings
Raleigh Shields	Roundup
Frank Starina	Hardin
Waldo Vangsness	Lewistown

District 6

H. C. Friede, Supervisor	Malta
William DuBeau	Fort Peck
Harold Gartside	Plentywood

District 7

John Cook	Glendive
E. M. Krost	Sidney
Jack Nicolay	Miles City
Warren Linville	Broadus

GAME FARMS

V. W. Bailey, Foreman	Fort Peck
Lester Barton, Foreman	Warm Springs
R. J. Wells, Foreman	Billings
J. S. Ramsey, Custodian	Moiese

FISHERIES

Hatchery Foremen:	
Fred Beal	Anaconda
George Ripley	Arlee
Forest Keller	Big Timber
George Miller	Emigrant
Iver Haglund	Great Falls
Eli Melton	Hamilton
Leo Gilroy	Lewistown
John Sheehan	Libby
A. E. Tangen	Polson
Frank Marcoe	Somers
Clarence Ripley—Rough Fish Control Project Foreman.	

RESTORATION DIVISION

W. Ken Thompson, Assistant Director	Helena
Faye M. Couey, Big Game Biologist	Helena
Wm. R. Bergeson, Game Bird Biologist	Helena
Hector J. LaCasse, Draftsman-Photographer	Helena
Wynn Freeman, Waterfowl Biologist	Helena
Don Brown, Assistant Big Game Biologist	Roundup
Merle J. Rognrud, Assistant Big Game Biologist	Missoula
Robert J. Greene, Assistant Game Bird Biologist	Helena
Richard L. Hodder, Range Fieldman	Gallatin
Robert Casebeer, Range Fieldman	Helena
J. E. Gaab, Unit Manager	Gallatin
Bruce Neal, Unit Manager	Augusta
Jack E. Schmautz, Unit Biologist	Libby
Ade Zajanc, Fieldman	Libby
Lawrence Brown, Fieldman	Roundup
Fred L. Hartkorn, Fieldman	Helena
Kenneth Riersgard, Fieldman	Roundup
Bob Neal, Fieldman	Augusta
Rex C. Smart, Shop Foreman	Helena
S. A. Mongrain, Warehouse Foreman	Helena
Jack Owens, Field Foreman	Helena
C. H. Harkness, Field Foreman	Augusta
William F. Koch, Field Foreman	Helena

Financial Statements

STATEMENT OF INCOME

May 1, 1946 — April 30, 1947

Hunting and Fishing Licenses and Shipping Permits:			
Resident Bird and Fish	140,640	@ \$ 2.00	\$281,280.00
Resident Big Game	74,316	@ 1.00	74,316.00
Resident Sportsman	1,712	@ 5.00	8,560.00
Non-Resident Fishing	4,351	@ 5.00	21,755.00
Non-Resident Bird	292	@ 10.00	2,920.00
Non-Resident Big Game	2,907	@ 30.00	87,210.00
Alien Big Game	4	@ 50.00	200.00
Alien Bird	2	@ 30.00	60.00
Alien Fishing	95	@ 10.00	950.00
Shipping Permits	7,007	@ .60	4,204.20
Tourist Fishing	17,490	@ 2.50	43,725.00
			\$525,180.20
Less Dealers' Fees			24,104.20
Net Income from Sale of 1946 Licenses			\$501,076.00
Plus 1945 Accounts Paid During Above Period			2,556.00
Total Income from Hunting and Fishing License Sales			\$503,632.00
Licenses and Permits Other Than Above:			
Beaver Tags	10,200	@ \$.50	\$ 5,100.00
Beaver Trapping Permits	1,587	@ 10.00	15,870.00
General Trappers' Licenses	1,179	@ 10.00	11,790.00
Land Owner Trappers' Licenses	698	@ 1.00	698.00
Guides' Licenses	212	@ 10.00	2,120.00
Taxidermists' Licenses	8	@ 15.00	120.00
Alien Gun Permit	1	@ 25.00	25.00
Resident Fur Dealers' Licenses	93	@ 10.00	930.00
Fur Dealer Agents' Licenses	23	@ 10.00	230.00
Non-Resident Fur Dealers' Licenses	6	@ 50.00	300.00
Certificates of Identification	429	@ .50	214.50
Special Antelope Permits	2,424	@ 1.00	2,424.00
Special Moose Permits	90	@ 25.00	2,250.00
			\$ 42,071.50
Miscellaneous Revenue:			
Fines			\$ 14,514.23
Confiscation — Sale of Fish and Meats			2,999.53
Sale of Brood Hens			1,155.98
Refunds			62.79
Other Revenue			1,629.27
Sale of State Trapped and Confiscated Furs			416.50
			\$ 20,778.30
			\$566,481.80
Remittances made Direct to State Treasurer's Office			\$ 285.00
Refund to Fish and Game Fund			953.26
Income by Reimbursement — Wildlife Restoration Division			56,615.79
TOTAL INCOME TO DEPARTMENT DURING ABOVE PERIOD			\$624,335.85

STATEMENT OF DISBURSEMENTS

May 1, 1946 — April 30, 1947

Commissioners	\$ 3,744.59
Administration	57,288.89
Game Division (Deputies)	113,996.48
Game Farm — Warm Springs	20,428.05
Game Farm — Billings	21,446.59
Game Farm — Fort Peck	32,858.03
Game Farm — Moiese	7,867.46

Fisheries Division:

Hatcheries: Anaconda	\$ 16,225.84
Great Falls	12,695.10
Hamilton	8,914.96
Lewistown	13,504.46
Big Timber	11,911.36
Polson	4,707.97
Ovando	876.19
Libby	14,459.29
Emigrant	11,711.23
Somers	8,500.47
Arlee	17,991.13
U. S. Hatchery — Miles City	2,150.09

Spawning Stations:

West Yellowstone	2,583.83
Georgetown Lake	830.29
Alvord Lake	254.03
South Fork, Madison	10.00
Aldrich Lake	89.65
Willow Creek	616.33
Lake Agnes	176.08
Ashley Lake	108.14
McNeil Slough	3,807.94
Lake Ronan	168.28
Investigation, Propagation and Distribution of Fish	7,322.90
Fish Screens	145.33

Total, Fisheries Division	\$139,724.89
Wildlife Restoration Division	84,568.24
Willow Creek Elk Camp	1,405.95
Checking Stations	1,141.69
Miscellaneous Activities	20,353.81
TOTAL EXPENSES DURING YEAR	\$504,824.67

STATEMENT OF INCOME

May 1, 1947 — April 30, 1948

Hunting and Fishing Licenses and Shipping Permits:

Resident Bird and Fish	140,327	@	\$ 3.00	\$420,981.00
Resident Big Game	71,819	@	2.00	143,638.00
Tourist Fishing	17,651	@	2.50	44,127.50
Non-Resident Fishing	3,567	@	10.00	35,670.00
Non-Resident Bird	121	@	25.00	3,025.00
Non-Resident Big Game	954	@	100.00	95,400.00
Shipping Permits	4,064	@	.60	2,438.40
				<hr/>
Less Dealer's Fees				\$745,279.90
				23,317.40
				<hr/>
Net Income from Sale of 1947 Licenses				\$721,962.50
Plus 1946 Accounts paid during above period				3,000.90
				<hr/>
Total Income from Hunting and Fishing Licence Sales				\$724,963.40

Licenses and Permits Other Than Above:

Beaver Tags	10,995	@	\$.50	\$ 5,497.50
General Trappers' Licenses	689	@	10.00	6,890.00
Land Owner Trappers' Licenses	582	@	1.00	582.00
Beaver Trapping Permits	913	@	10.00	9,130.00
Extra Beaver Granted	2,078	@	1.00	2,078.00
Guides' Licenses	210	@	10.00	2,100.00
Resident Fur Dealers' Licenses	67	@	10.00	670.00
Fur Dealers Agents' Licenses	23	@	10.00	230.00
Non-Resident Fur Dealers' Licenses	4	@	50.00	200.00
Certifications of Identification	519	@	.50	259.50
Minnow Seining Permits	18	@	10.00	180.00
Rough Fish Seining Permits	2	@	50.00	100.00
Taxidermists' Licenses	11	@	15.00	165.00
Alien Gun Permit	1	@	25.00	25.00
Special Moose Permits	95	@	25.00	2,375.00
Special Elk Permits (Less Fees)	264	@	1.00	251.10
Special Deer Permits	200	@	5.00	1,000.00
Special Antelope Permits	2,854	@	5.00	14,270.00
				<hr/>
				\$ 46,003.10

Miscellaneous Revenue:

Fines	\$ 28,826.80
Confiscation — Sale of Fish and Meats	5,084.16
Sale of Brood Hens	1,238.42
Refunds	590.99
Other Revenue	965.23
Sale of State Trapped and Confiscated Furs	14,777.65
Royalty on Beaver Sold	4.00
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	\$ 51,487.25
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	\$822,453.75
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Income by Reimbursement — Wildlife Restoration Division	\$117,429.52
Overdeposit on Beaver Tags	2.00
Less 1946 Cash Receipts Cancelled by Refund	115.20
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TOTAL INCOME TO DEPARTMENT DURING ABOVE PERIOD	\$939,770.07

STATEMENT OF DISBURSEMENTS

May 1, 1947 — April 30, 1948

Commissioners		\$ 3,116.04
Administration		90,503.09
Deputies and Special Deputies		166,020.47
Game Farm — Warm Springs		43,110.28
Game Farm — Billings		22,945.94
Game Farm — Fort Peck		26,132.35
Game Farm — Moiese		7,810.32
Fisheries Division:		
Hatcheries: Anaconda	\$ 77,420.36	
Arlee	91,920.78	
Blue Water Springs	3,009.00	
Great Falls	15,735.57	
Hamilton	9,697.59	
Lewistown	84,668.67	
Big Timber	13,781.24	
Polson	4,166.28	
Ovando	718.19	
Libby	17,423.33	
Emigrant	23,181.63	
Somers	12,486.27	
McNeil Slough	6,753.09	
Red Lodge	305.14	
U. S. Hatcheries:		
Miles City	2,535.62	
Ennis	5,628.26	
Creston	4,019.47	
Spawning Stations:		
Ashley Lake	912.37	
Alvord Lake	76.72	
Bitterroot Lake	125.00	
Georgetown Lake	759.63	
Hebgen Lake	1,003.16	
Lake Ronan	450.70	
Willow Creek	497.50	
West Yellowstone	342.56	
Distribution of Fish	4,732.87	
Rough Fish Control	11,293.38	
Stream Improvement	40.00	
Fish Screens	542.20	
Total, Fisheries Division		\$394,226.58
Miscellaneous Activities		18,831.89
Predator Control		36,317.50
Willow Creek Elk Camp		137.39
Biological and Research Division		18,475.60
Warden Patrol Cabins		440.01
Wildlife Restoration Division		194,719.50
Appropriated to Purchasing Department		997.58
TOTAL EXPENSES DURING YEAR		\$1,023,784.54

RECAPITULATION OF EXPENDITURES

Years Ending April 30, 1947 and 1948

	April 30 1947	April 30 1948
Administration		
Operation	\$ 51,218.50	\$ 79,595.74
Capital Expenditures	4,638.52	9,606.96
Repairs and Replacements	1,431.87	1,300.39
Total	\$ 57,288.89	\$ 90,503.09
Commissioners' Expense	\$ 3,744.59	\$ 3,116.04
Deputies and Special Deputies		
Operation	\$107,333.80	\$162,181.51
Capital Expenditures	557.87	2,446.98
Repairs and Replacements	6,104.81	1,391.98
Total	\$113,996.48	\$166,020.47
Game Farm — Warm Springs		
Operation	\$ 11,440.40	\$ 29,294.03
Capital Expenditures	7,214.26	9,018.61
Repairs and Replacements	1,773.39	4,797.64
Total	\$ 20,428.05	\$ 43,110.28
Game Farm — Billings		
Operation	\$ 11,762.69	\$ 16,946.60
Capital Expenditures	7,574.35	2,599.81
Repairs and Replacements	2,109.55	3,399.53
Total	\$ 21,446.59	\$ 22,945.94
Game Farm — Fort Peck		
Operation	\$ 24,483.47	\$ 20,251.42
Capital Expenditures	3,535.37	4,424.23
Repairs and Replacements	4,839.19	1,456.70
Total	\$ 32,858.03	\$ 26,132.35
Game Farm — Moiese		
Operation	\$ 3,078.92	\$ 2,906.31
Capital Expenditures	4,601.38	4,458.09
Repairs and Replacements	187.16	445.92
Total	\$ 7,867.46	\$ 7,810.32
Fisheries Division		
Operation	\$111,710.07	\$151,408.78
Capital Expenditures	14,405.42	215,718.43
Repairs and Replacements	13,609.40	27,099.37
Total	\$139,724.89	\$394,226.58
Miscellaneous Activities	\$ 6,085.48	\$ 18,831.89
Predator Control	\$ 14,268.33	\$ 36,317.50
Willow Creek Elk Camp		
Operation	\$ 1,399.35	\$ 137.39
Capital Expenditures	4.60	
Repairs and Replacements	2.00	
Total	\$ 1,405.95	\$ 137.39
Biological and Research Division		
Operation	\$	\$ 12,400.77
Capital Expenditures		5,829.19
Repairs and Replacements		245.64
Total	\$	\$ 18,475.60
Warden Patrol Cabins		
Operation	\$	\$ 249.23
Capital Expenditures		
Repairs and Replacements		190.78
Total	\$	\$ 440.01
Wildlife Restoration Division		
Operation	\$ 74,066.23	\$113,137.76
Capital Expenditures	6,119.01	73,474.51
Repairs and Replacements	4,383.00	8,107.23
Total	\$ 84,568.24	\$194,719.50

Checking Stations	\$ 1,141.69	\$
Montana State Purchasing Department Funds Drawn by Purchasing Department	\$	\$ 997.58
Net Total Expenditures:		
Fish and Game Department	\$504,824.67	\$1,023,784.54

RECAPITULATION OF FUNDS

May 1, 1946 to April 30, 1947 and May 1, 1947 to April 30, 1948

Balance Forwarded: April 30, 1946	\$ 244,716.72
Income During Year: By Deposit with State Treasurer	567,435.06
Income During Year: By Reimbursement — P. R. Funds	56,615.79
Remitted Direct to State Treasurer's Office	285.00
	<hr/>
Funds Available During Year	\$ 869,052.57
Expenditures During Year — Both Funds	504,824.67
	<hr/>
Balance April 30, 1947 — Funds 131 and 104-11	\$ 364,227.90
Plus Pittman-Robertson Accounts Receivable	73,138.68
	<hr/>
Potential Fish and Game Funds: April 30, 1947	\$ 437,366.58
Balance Forwarded: April 30, 1947	\$ 364,227.90
Income During Year: By Deposit with State Treasurer	822,340.55
Income During Year: By Reimbursement — P. R. Funds	117,429.52
	<hr/>
Total Income During Year	\$ 939,770.07
	<hr/>
Funds Available During Year	\$1,303,997.97
Expenditures During Year — Both Funds	1,023,784.54
	<hr/>
Balance: April 30, 1948 — Funds 131 and 104-11	\$ 280,213.43
Plus P. R. Accounts Receivable: April 30, 1948	73,204.13
	<hr/>
Potential Fish and Game Funds	\$ 353,417.56

1946 LICENSE SALES BY COUNTIES

County	Resident Bird and Fish	Resident Big Game	Resident Sportsman's	Non-Resident Fishing	Non-Resident 10-Day Fishing	Non-Resident Bird	Non-Resident Big Game	Alien Fishing	Totals
Beaverhead	2,587	1,526	29	305	1,429	5	95	1	5,977
Big Horn	1,490	447	11	43	104	6	1	1	2,103
Blaine	1,011	444	10	4	18	1			1,488
Broadwater	1,054	777	8	9	56		4		1,908
Carbon	2,770	1,112	46	64	298		30	3	4,323
Carter	386	381					1		768
Cascade	11,839	5,268	140	44	325	10	130	7	17,763
Chouteau	1,148	417	12	4	29				1,610
Custer	1,659	925	17	7	32		29		2,669
Daniels	324	81			3				408
Dawson	1,489	606		8	28	3	7		2,141
Deer Lodge	3,484	1,703	15	17	161		20		5,400
Fallon	480	351	4				6		841
Fergus	4,517	3,293	106	36	182	1	31		8,166
Flathead	11,006	6,595	44	221	1,271	17	243	10	19,407
Gallatin	7,007	3,870	62	1,050	5,147	20	332	9	17,497
Glacier	1,885	627	114	56	113		34	3	2,832
Garfield	300	124			4				428
Golden Valley	373	262	15		17				667
Granite	1,015	680	13	14	86		19		1,827
Hill	2,687	765	34	11	53	3	9	4	3,566
Jefferson	1,235	858	5	11	55		4		2,168
Judith Basin	932	715	11	4	44		13		1,719
Lake	3,692	1,589	54	105	682	34	26		6,182
Lewis & Clark	7,032	4,482	68	111	370	5	361	6	12,435
Liberty	304	112	2	6	8				432
Lincoln	3,177	2,292	18	269	786	3	39	10	6,594
Madison	2,186	1,428	10	155	884	3	60		4,726
McCone	416	73	3		10				501
Meagher	1,125	829	9	9	71		8		2,051
Mineral	1,056	757	6	759	526	42	98	3	3,247
Missoula	9,546	5,644	40	181	1,052	22	354	2	16,841
Musselshell	1,444	925	15	5	56		18		2,463
Park	4,345	2,987	60	69	475	6	235	8	8,185
Petroleum	164	120	10		5				299
Phillips	1,028	463	52	2	18	1		1	1,565
Pondera	1,674	673	78	13	32	8	17		2,495
Powder River	314	290	5		1				610
Powell	1,968	1,373	19	21	171		62	2	3,616
Prairie	281	181	12						474
Ravalli	4,425	2,976	29	80	496	4	146	1	8,157
Richland	1,383	609	64	6	17	32	31		2,142
Roosevelt	1,394	386	26	14	25	5	6		1,856
Rosebud	664	457	23	1	10				1,155
Sanders	2,601	1,790	9	308	853	9	115	1	5,686
Sheridan	702	125	39	3		20			889
Silver Bow	9,295	3,971	35	62	414	10	64	8	13,859
Stillwater	2,168	1,219	43	41	183		21		3,675
Sweetgrass	1,600	1,117	14	52	241		26	1	3,051
Teton	1,584	806	13	12	58	1	19		2,493
Toole	1,082	337	12	3	20		6		1,460
Valley	2,353	462	28	20	122	7	20		3,012
Wheatland	1,479	1,067	42	36	87	3	49	6	2,769
Wibaux	270	75		12	9				366
Yellowstone	9,919	3,520	193	98	394	11	118	10	14,263
Moyie Springs, Idaho (on Montana State Line)	20	35		2	73		7		137
Totals	141,368	74,997	1,727	4,363	17,604	292	2,914	97	243,362

The above figures do not include 2 Alien Bird Licenses and 4 Alien Big Game Licenses, sold in Helena Office, County of Lewis and Clark.

1947 LICENSE SALES BY COUNTIES

County	Resident Bird and Fish	Resident Big Game	Tourist Fishing	Non-Resident Fishing	Non-Resident Bird	Non-Resident Big Game	Totals
Beaverhead	2,519	1,414	1,522	171	3	36	5,665
Big Horn	1,597	514	93	36	2	1	2,243
Blaine	1,056	414	22	8	---	---	1,500
Broadwater	1,035	736	54	11	1	1	1,838
Carbon	2,732	1,165	248	67	---	7	4,219
Carter	121	92	---	---	---	---	213
Cascade	11,819	5,419	344	64	1	76	17,723
Chouteau	1,349	562	19	1	---	---	1,931
Custer	1,920	1,032	34	2	1	5	2,994
Daniels	357	107	2	---	---	---	466
Dawson	1,453	458	28	9	---	---	1,948
Deer Lodge	3,410	1,641	209	33	---	5	5,298
Fallon	482	330	1	---	---	---	813
Fergus	4,469	3,369	206	29	2	5	8,080
Flathead	10,875	6,319	1,297	275	10	67	18,843
Gallatin	7,024	3,690	4,851	862	5	141	16,573
Garfield	349	165	5	---	---	---	519
Glacier	1,986	668	91	27	---	26	2,798
Golden Valley	386	254	20	3	---	---	663
Granite	1,131	706	80	23	---	9	1,949
Hill	2,830	710	41	10	2	2	3,595
Jefferson	1,135	764	61	7	---	2	1,969
Judith Basin	939	685	36	7	---	1	1,668
Lake	4,011	1,568	848	151	33	12	6,623
Lewis and Clark	7,041	4,473	324	121	3	162	12,124
Liberty	284	116	1	2	---	---	403
Lincoln	2,917	1,945	945	158	---	2	5,967
Madison	2,074	1,331	1,148	143	---	29	4,725
McCone	366	108	15	---	---	---	489
Meagher	1,033	730	85	14	---	4	1,866
Mineral	1,048	724	583	417	8	4	2,784
Missoula	9,698	5,321	966	246	9	120	16,360
Musselshell	1,442	890	54	6	---	4	2,396
Park	4,036	2,581	427	104	---	53	7,201
Petroleum	243	180	1	---	---	---	424
Phillips	942	500	10	---	---	---	1,452
Pondera	1,858	706	43	8	1	1	2,617
Powder River	298	280	---	---	1	---	579
Powell	1,726	1,237	111	23	---	39	3,136
Prairie	307	193	4	---	---	---	504
Ravalli	4,260	2,713	559	83	4	44	7,663
Richland	1,439	322	8	2	4	1	1,776
Roosevelt	1,233	305	43	7	5	4	1,597
Rosebud	820	536	11	---	---	---	1,367
Sanders	2,453	1,722	795	164	12	13	5,159
Sheridan	803	162	---	1	7	---	973
Silver Bow	8,201	3,503	341	63	2	30	12,140
Stillwater	2,062	1,198	159	42	---	1	3,462
Sweet Grass	1,447	1,022	219	49	---	8	2,745
Teton	1,678	867	45	20	---	16	2,626
Toole	1,189	327	14	10	---	---	1,540
Valley	2,720	548	236	18	1	---	3,523
Wheatland	1,352	938	91	17	---	10	2,408
Wibaux	222	78	10	7	---	---	317
Yellowstone	10,915	4,058	384	71	6	31	15,465
Totals	141,092	72,396	17,744	3,592	123	972	235,919

FISH AND GAME LAW VIOLATIONS

Violation	May 1, 1946 to April 30, 1947	May 1, 1947 to April 30, 1948
Fishing in closed waters	27	56
Fishing without license	83	99
Fishing during closed season	19	8
Fishing with set lines	22	20
Fishing before or after hours	11	22
Over limit of game fish	46	53
Possession or use of seine, spear, dynamite, snagging outfit or cowbells	23	16
Fishing with minnows	1	—
Possession or use of salmon eggs	17	28
Pollution of streams	1	3
False affidavit to secure resident license	16	24
Possession of illegal beaver hides	9	2
Dealing in furs without a license	1	4
Trapping during closed season	5	9
Trapping without a license	8	5
Shipping furs without permit	5	2
Trapping in muskrat house	1	—
Possession of illegal furs	2	2
Violation of Migratory Bird Act	29	54
Possession of pheasant hen	1	6
Killing game birds during closed season	19	29
Shooting game from highway or auto	1	7
Hunting before or after hours	1	23
Over limit of game birds	—	7
Hunting or possession of game animals during closed season	25	39
Hunting without license	3	19
Possession of illegal game	23	54
Spotlight hunting	2	12
Hunting in closed area	14	11
Killing doe deer or fawn deer	6	12
Killing or possession of grizzly bear in closed area or closed season	4	—
Shipping game without permit	1	—
Transfer of big game tag	2	5
Failure to tag deer or elk	11	10
Shooting elk before hours	—	4
Wasting game meat	1	3
Killing female bear with cubs or cub bears	5	5
Hunting big game without wearing red on clothing	2	3
Guide allowing violation in party	—	1
TOTALS	447	657

FISH AND GAME LAW VIOLATIONS

By County

Violation	May 1, 1946 to April 30, 1947	May 1, 1947 to April 30, 1948
Beaverhead	31	18
Big Horn	3	9
Blaine	1	4
Broadwater	9	3
Carbon	23	11
Carter		2
Cascade	12	29
Chouteau	1	3
Custer		4
Daniels		
Dawson	5	
Deer Lodge	16	27
Fallon		2
Fergus	4	4
Flathead	61	104
Gallatin	20	35
Garfield	1	
Glacier	2	4
Golden Valley	2	
Granite	2	12
Hill	3	12
Jefferson		7
Judith Basin		5
Lake	36	47
Lewis and Clark	9	15
Liberty		
Lincoln	18	32
Madison	5	18
McCone		9
Meagher	8	15
Mineral	18	31
Missoula	14	19
Musselshell		
Park	18	11
Petroleum		
Phillips	9	
Pondera		13
Powder River	2	4
Powell	4	2
Prairie		
Ravalli	7	16
Richland	1	2
Roosevelt		
Rosebud	3	3
Sanders	38	50
Sheridan	9	11
Silver Bow		2
Stillwater	13	15
Sweet Grass	7	9
Teton	2	15
Toole	1	
Treasure	1	
Valley	10	8
Wheatland	7	3
Wibaux	2	3
Yellowstone	9	9
TOTALS	447	657

FISH DISTRIBUTION BY HATCHERIES
May 1, 1946 — April 30, 1947 — Fry

	Black Spotted	Rainbow	Eastern Brook	Lock Leven	Sockeye Salmon	Grayling	Minnows	Pike	Bass	Bluegill	Crappie	Bullheads
Anaconda	631,898	533,072		311,180		2,900,000						
Arlee			10,510									
Big Timber	545,940	481,760	2,319	208,086								
Emigrant	373,392	175,000		353,000								
Great Falls	157,232	136,060		102,680	55,000							
Hamilton	249,200	22,760		292,590								
Lewistown	80,540	132,150		163,920								
Libby	141,680		198,440			300,000						
Ovando	242,760	49,700			889,700							
Polson	225,290	339,500			1,983,000		500	3,525	1,700	135,848	192,242	89,920
Somers	804,330	643,000					500	3,525	37,241	135,848	192,242	89,920
Miles City												
TOTALS	3,452,262	2,513,002	461,269	1,431,456	2,927,700	3,200,000	500	3,525	38,942	135,848	192,242	89,920

FISH DISTRIBUTION BY HATCHERIES
May 1, 1946 — April 30, 1947 — Yearlings

	Black Spotted	Rainbow	Eastern Brook	Loch Leven	Silver Salmon	Bass	Bluegills
Anaconda	34,874	154,119	1,900		25,900		
Arlee	24,630	78,460	14,600				
Big Timber		186,600	65,160	108,110			
Emigrant	67,581	51,574	127,000				
Great Falls	275,851	89,500	148,510	12,240			
Hamilton	12,140	76,340					
Lewistown	30,394	109,890	115,928	3,360			
Libby	122,680	194,520	131,440				
Ovando							
Polson			7,500				
Somers						250	428
Miles City						250	428
Totals	319,884	941,003	612,038	123,710	25,900		

FISH DISTRIBUTION BY HATCHERIES
May 1, 1947 — April 30, 1948 — Fry

	Black Spotted	Rainbow	Eastern Brook	Loch Leven	Grayling	Sockeye Salmon	Bass	Bluegills	Walleyed Pike	Crappie	Bullheads
Anaconda	118,000	73,224	41,280	181,040	255,000				135,000		
Arlee		40,000									
Big Timber	280,988	273,794	153,612	394,600							
Emigrant	390,540		129,500	388,000							
Great Falls	322,900	35,250	39,400	177,700							
Hamilton	594,680	264,648		284,310							
Lewistown	367,480	531,648		369,324			200				
Libby	20,960		20,000								
McNeil Ponds,									887,454		
Ovando	136,000	3,000				1,046,400					
Polson	213,350	285,800				989,400					
Somers	370,355	300,000	283,500				50,210	161,839		82,569	23,807
Miles City							50,440	161,839	1,022,454	82,549	23,807
TOTALS	2,815,253	1,807,364	667,292	1,794,974	255,000	2,035,800					

FISH DISTRIBUTION BY HATCHERIES
May 1, 1947 — April 30, 1948 — Yearlings

	Black Spotted	Rainbow	Eastern Brook	Loch Leven	Bass	Bluegills	Crappie	Bullheads
Anaconda	103,529	56,213	7,500					
Arlee	120,650	54,150	69,315					
Big Timber		179,924	2,600	222,600				
Emigrant	311,780	70,000						
Great Falls	1,200	252,440	123,138					
Hamilton	3,300	11,780	73,544					
Lewistown	13,350	104,149	76,100					
Libby	67,000	83,600			2,225	428	1,657	200
Polson								
Somers	5,800							
Miles City								
Totals	606,609	812,256	352,197	222,600	2,225	428	1,657	200

FISH EGGS TAKEN AT STATE SPAWNING STATIONS AND ACQUIRED THROUGH CO-OPERATIVE AGREEMENTS July 1, 1946 to June 30, 1947*

	Black Spotted	Rainbow	Eastern Brook	Loch Leven	Sockeye Salmon	Walleyed Pike	Grayling
Aldrich Lake	647,280						
Alvord Lake							
Arlee		320,646	2,658,776				
Ashley Lake	1,972,840	238,977					
Bitterroot Lake					2,179,436		
Flathead Lake — Somers					1,339,464		
— Station Creek							
Flint Creek	1,730,800	1,066,022		3,122,144			627,418
Hebgen Lake		1,333,056					
Kilbrennen Lake			213,614				
Lake Ronan		930,490					
Willow Creek		2,003,606					
Fish and Wildlife Service (Yellowstone Park)	1,052,311					154,112	
Ohio Department of Conservation						1,058,336	
Waskish Hatchery, Bemidji, Minn.							
State Hatchery, Wash. Goldendale,		52,046					
Totals	5,403,231	5,944,843	2,872,390	3,122,144	3,518,900	1,212,448	627,418

*—This period covered for spawning operations rather than May 1, 1946 — April 30, 1948
in order to show the figures for spring spawning operations all together.

FISH EGGS TAKEN AT STATE SPAWNING STATIONS AND ACQUIRED THROUGH CO-OPERATIVE AGREEMENTS July 1, 1947 to June 30, 1948*

	Black Spotted	Rainbow	Eastern Brook	Loch Leven	Grayling	Sockeye Salmon	Silver Salmon	Whitefish	Walleyed Pike
Aldrich Lake	56,202		2,626,614						
Alvord Lake									
Ashley Lake	1,271,424	319,872							
Bitterroot Lake		232,364							
Arlee									
Flathead Lake									
Flint Creek		2,448,448		1,739,336	1,936,386	2,019,072			
Hebgen	2,095,764	1,335,600						957,696	
Lake Ronan		99,008							
Station Creek						1,205,232			
Willow Creek		1,965,588							
Fish and Wildlife Service (Yellowstone Park)	1,000,000				1,543,680				
Idaho — Henry's Lake Hatchery	529,152								
Minnesota — Dept. of Cons., St. Paul									1,044,063
Auburn, Wash., Hatchery							77,300		
Seattle Wash., School of Fisheries		27,608							
Totals	4,952,542	6,428,488	2,626,614	1,739,336	3,480,066	3,224,304	77,300	957,696	1,044,063

*—This period covered for spawning operations rather than May 1, 1947 — April 30, 1948 in order to show the figures for spring spawning operations all together.

New Raceway Ponds at Anaconda

